DIGITAL HARBOR™

"People, processes, and data drive the flow of information in an enterprise, and both the sources and relationships are constantly changing. Since enterprises are dynamic and applications are not, there is a gap between the way end-users conduct their work and the systems that store the information. And the gap is growing …"

Topic: Composable ForceNet Demands a Composite Approach To Integrating Information

Key Concepts: Composite Applications, Semantic Web, Ontologies, Horizontal Fusion

Abstract: The current DoD command and control environment has at least 360 systems of record worth $36 billion.1 No commander can possibly take advantage of the flood of data available to him, yet the increasing tempo of battle coupled with the exploding amount of information means that decisions must be derived from the richest shared situational picture available. The Navy envisions that Composable ForceNet will allow information to be composed for commanders from current architectures leveraging standards and policies guided by disciplined system engineering processes. But – warfighters don't think in terms of information technology, they think in terms of targets and ships and weapons…and the changing relationships among them. Therefore, the discussion must extend beyond composing architectures to include the information itself, which must be composed for and consumed by the decision maker. This presentation discusses how commercial technology is used by the intelligence community and DoD to compose reusable applications for warfighters in radically compressed timeframes from existing data and systems.

Overview: People Need Context to Convert Information into Knowledge
The challenge is to leverage the right assets—information assets, physical assets, human assets—in the right context to effectively and efficiently identify, analyze, and respond to situations. If users at the edge are to exploit the power of the network, we must do more than present them data side by side; we must capture the intelligence and meaning (semantics) embodied in the network relationships by fusing the relevant component pieces of information and functionality so that we achieve a holistic picture of the situation that is *more* than the sum of the parts. We must provide real-time visibility and collaboration across stovepipes so that operators can act upon this information using a common operating picture.

Challenge: Problems are Dynamic, but Current Solutions Are Static
The challenge is that information and assets are always changing, and the relationships among them change, so delivering people a holistic view has been impractical—if not impossible—using existing approaches. Instead, Composable ForceNet demands an architectural framework that moves beyond static tools to a dynamic, standards-based COTS architecture which marries heterogeneous data, functionality, processes, and events from many systems using a *Semantic Integration* layer, based upon a Business Ontology, to provide a higher level of abstraction than we've been able to achieve using traditional tools.

Solution: Composite Applications use Semantics and Ontologies to Capitalize on Network "Intelligence"
Composite Applications integrate heterogeneous databases and applications in the context of people and business processes to deliver the _right information to the right people in the right context_. Conceptually it approaches the problem of integration in a more elegant way by providing integration at the knowledge level, not just at the data and application level. James Gosling, Father of Java, says Digital Harbor's approach is "exactly where computing should be", and Vinton Cerf, creator of TCP/IP, describes it as "the most exciting thing I've seen since Mosaic". Where current technologies focus on AGGREGATION (side by side shared access) to

---

1 [1] Ms. Robin Quinlan, OUSD/AT&L, Assistant Director, Force Integration at 2003 NDIA Interoperability and Systems Integration Conference, presentation titled *Joint Force Integration*

support <u>Total Asset Visibility</u>, Composite Applications deliver FUSION to support true <u>Situational Awareness</u>.

1.   Real-time interactive correlation among data from heterogeneous data sources and legacy applications.
2.   One-click Discovery of related information without knowing know whom to call or what system to use
3.   In-context navigation and interpretation of data focused on specific task
4.   Dynamic and contextual collaboration through ad-hoc workflows and smart planning infrastructure
5.   Real-time monitoring of activities / alerts with integrated response (correlate, identify, act in context)

"*Data in the context of other data is information. Information in the context of other information is knowledge.*"